**THE SJI SKY AND SPACE UPDATE AS AN EDUCATION RESOURCE, AND VIDEOCONFERENCING IN PLANETARY SCIENCE EDUCATION.** B. H. Betts, San Juan Capistrano Research Institute, 31872 Camino Capistrano, San Juan Capistrano, CA 92675, Email: betts@sji.org.

**Summary**: The San Juan Institute (SJI) Sky and Space Update is a recently developed resource for students, teachers, and other adults. It is a 24-hour, weekly-updated phone (714-240-3420), email (to subscribe send email to educate@sji.org), and WWW (http://www.sji.org) free service that provides youths and adults with information on the night sky and recent events in Solar System science and human and robotic space exploration. Another new and exciting project using recently emerging technology is the use of videoconferencing for planetary science education. SJI is now doing videoconferenced "field trips" and workshops with groups of teachers and students hundreds of miles away. Videoconferencing represents a new and exciting possibility for scientists and educators to reach a broad audience in a very personalized way.

**Sky and Space Update.** The SJI Sky and Space Update (SSU) provides students, teachers, and other adults with information on the night sky, recent events in Solar System science, and space exploration. It targets an audience ranging from elementary school students to adults.

The service is relatively unique because: (1) it combines in one location information on the night sky *and* planetary science *and* human space flight; (2) users do not need background in astronomy or space science to understand and use the information presented, nor do they necessarily need to be computer oriented to access the service. Also, they do not need telescopes to enjoy the sky objects that are described. Also, the SSU is a useful service for professionals and amateurs because it provides weekly-updated, brief summary information in one convenient location.

Specifically, the SSU provides: easily understandable information about interesting things to see in the night sky, including planets and constellations; updates on the status and latest results from planetary spacecraft missions; unique astronomical events, such as the passage of Comet Hyakutake; recent discoveries in space; opportunities for sighting spacecraft, such as the Shuttle and Mir; and unusual facts about space objects and phenomena.

Teachers can use the service in several ways including having a different student check it each week and report on their findings to support class space studies or even a study of current events. The SSU fits nicely as an addition to various astronomy, Solar System, physics, and general science curricula. Also, students and teachers can use the SSU as a convenient jumping off point for exploring recent topics in Solar System and space exploration. Web sites with more detailed information are given regularly in the SSU.

Archives of the Sky and Space Update as well as archives of just the Random Space Fact and This Week in Space History segments are available at http://www.sji.org/ed/ssu.html.

There are currently email subscribers to the SSU from across the U.S. as well as from over 25 countries around the world, in addition to many other users of the web and phone versions.

The SSU information is available in print; via voice recording on a dedicated telephone line (714-240-3420); on SJI's Home Page (http://www.sji.org); and via (free) email subscription (to subscribe send email to educate@sji.org with the following *Subject* line: subscribe your_last_name your_first_name, e.g., subscribe Smith John).

We welcome feedback on the SSU as well as more suggestions for its use in a classroom, planetarium, or household setting. We also encourage you to tell others who may be interested about the service.

**Videoconferencing (Distance Learning):** Videoconferencing represents an exciting new way for scientists and educators to interact with teachers and students in remote locations. SJI is partnering with Pacific Bell's Education First program to develop and execute planetary education programs including "field trips" and public lectures via an interactive video-teleconferencing system. SJI is building on programs developed in its already successful local field trips.

Using computer (PC) and video equipment, audio and video signals are multiplexed over a single ISDN phone line (128 kbps), enabling students and teachers in schools with compatible equipment hundreds or thousands of miles away to see and speak live with SJI scientists and lecturers. ISDN allows point-to-point communication using affordable lines and equipment with good video.

As part of its pilot program, SJI has already held several videoconferences, which have included physical science demonstrations and question and answer sessions with classrooms of students, presentations to teacher workshops, and presentation of a Comet Hyakutake public lecture. We have also begun doing videoconferences on what we have learned about videoconferencing. Remote sites have included schools (ranging from elementary to college) and libraries throughout California, and recently a site at the Smithsonian in Washington, D.C.

Critical to a videoconferencing, and what makes it so significant, is the real time interactivity between teachers and students and scientists. Both ends can see and hear the people at the other end.

During a Comet Hyakutake public lecture, students and parents at three sites (San Diego, Monterey, and San Francisco, California) were not only able to see and hear the lecture program as it was going on, but to actually participate by asking questions and receiving answers through the live, two-way, video/audio hook-up. This was in addition to the participation of over 200 members of the on-site audience.

SJI is currently involved in studying the most effective methods to use this new educational medium to present planetary science to students and teachers. First order results involve taking questions frequently, and performing engaging demonstrations. In addition, working with K-13 teachers, we are exploring their needs and desires for future videoconferences and related curricula. More detailed results of this pilot program will be reported in the future. See http://www.sji.org/ed/videocon.html for more on our videoconferencing program.

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